

Intra-Cerebral Foreign Body With Orbital Entry Point In A Child: A Case Report

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Abstract:

The case is about a 9-month-old infant who sustained an orbital trauma from a pen tip, resulting in a cranio-encephalic foreign body. Initial clinical examination revealed periorbital swelling and inability to open the eyelid, while radiography and CT scans identified an intra-parenchymal frontal foreign body and a bony defect in the right orbit. Cranio-orbital foreign bodies, though rare, can lead to severe complications if not diagnosed early [1]. This case highlights the importance of thorough clinical evaluation and appropriate imaging for rapid diagnosis and early surgical intervention to prevent serious injuries.

Keywords: foreign body, orbital trauma

Date of Submission: 29-11-2024

Date of Acceptance: 09-12-2024

I. Introduction

Cranio-encephalic foreign bodies with an orbital entry point are rare and often overlooked. In the absence of diagnosis and treatment, they can lead to serious orbital and intracranial complications. They should be suspected in the case of recent or neglected orbital trauma, which may later present with secondary complications. We report the case of orbital trauma from a penetrating pen tip with a cranio-encephalic foreign body.

II. Case Report

A 9-month-old infant with no significant medical history was admitted to the emergency department for right eye trauma caused by a pen tip. On examination, there was inflammatory eyelid edema, inability to open the eyelid spontaneously, and no foreign body visible on eyelid eversion. (Figure 1)



Fig. 1: Image showing inflammatory eyelid edema.

The slit lamp examination showed a normal anterior segment, and the left eye was unaffected. Orbital radiography revealed a radio-opaque foreign body. Cranio-orbital CT imaging showed a hyperdense foreign body in the right frontal intra-parenchymal area, measuring approximately 8x4.5 mm, and creating a metallic artifact, likely a pen tip with both plastic and metallic components. Additionally, there was a bony defect in the roof of the right orbit, associated with intracranial bone fragments and thickening of the right eyelid soft tissues.

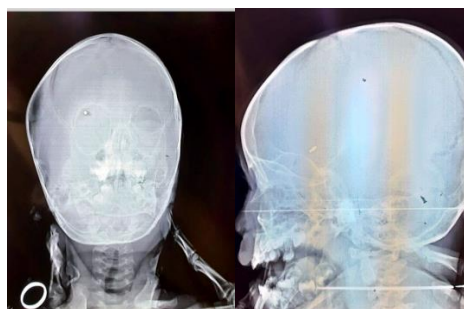


Fig. 2: Radiological image of the orbit (frontal and lateral views) showing the presence of a radio-opaque foreign body.

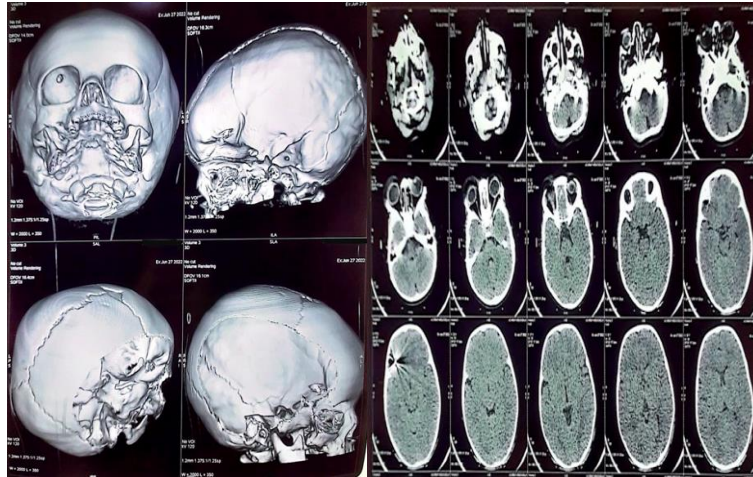


Fig. 3: CT scans showing the intra-cerebral foreign body with both plastic and metallic components.

III. Discussion

Penetrating orbital injuries have historically posed a significant threat to ocular and cerebral structures. Transorbital injuries account for up to 24% of penetrating cranial trauma in adults and 45% in children [2]. These injuries predominantly occur in young individuals, often in the context of alcohol use [3]. However, they can also result from accidental trauma during play, as seen in our case [4]. Penetrating orbital injuries should always be considered in the presence of complications, such as orbital cellulitis following neglected orbital trauma [5]. Foreign bodies can be transorbital, metallic, plant-based, glass, plastic, or of other types [6]. In our case, the foreign body consisted of both plastic and metallic components. Diagnosis is often difficult because the patient's history can be misleading, and orbital wounds may be challenging to assess clinically or may be underestimated [4]. In our case, the orbital wound was obscured by eyelid edema. Cranio-orbital foreign bodies should be suspected when there is a presumed organic orbital penetration, a periorbital wound, visual acuity loss, ocular motility disturbances, exophthalmos, neurological signs, or unexplained clinical deterioration [1]. CT imaging typically confirms the diagnosis in most cases; however, plant-based foreign bodies can sometimes be difficult to detect on CT due to their variable density, in which case MRI may be required [7]. The surgical approach depends on the location of the foreign body and is guided by imaging studies [9].

IV. Conclusion

Intracranial transorbital foreign bodies must be diagnosed early to avoid missing the diagnosis. A combination of clinical suspicion, correct interpretation of complementary imaging, and an experienced surgical team are essential for the diagnosis and management of cranio-encephalic foreign bodies with an orbital entry point.

References

- [1] H., Morax S : Diagnostic Et Prise En Charge Des Corps Etrangers Végétaux Intra-Orbitaire. *Journal Français D'ophtalmologie* 2009;32,8-15
- [2] Roger E. Turbin, Dawn N. Maxwell, Paul D. Langer, Larry P. Frohman , Basil Hubbi, Leo Wolansky, Mayumi Mori . *Patterns Of Transorbital Intracranial Injury: A Review And Comparison Of Occult And Non-Occult Cases*
- [3] D'hermies F, Halhal M, Morel X, Meyer A, Renard G : *Corps Étranger Végétal Intra-Orbitaire. J Fr Ophtalmol* 2001;24:517- 21.
- [4] T Rachidi, B Allali, L El Maaloum, A El Kettani, K Zaghloul : *Corps Étranger Intra-Orbitaire Négligé Chez L'enfant À Propos D'un Cas. Service D'ophtalmologie Pédiatrique, Casa Blanca Maroc* 2016;3:1546. 10.
- [5] Agaly. H1 , Ndzie Essomba L D.2 , Diallo. M 1 , Dama.M3 , Sogoba. B1 , Sogoba. Y 1 , Kanikomo. D. *Corps Etranger Insolite Cranio-Encéphalique A Point D'entrée Orbitaire : A Propos D'un Cas*
- [6] Hao-Cheng Liu 1, E Qiu, Tian-Ming Zhang, Jing-Wu Zhao, Wei-Xian Song, Ji-Di Fu. *Neurosurgical Therapy Of Transorbital Intracranial Foreign Bodies: Review Of 28 Cases*
- [7] Uchino A, Kato A, Takase Y, Kudo S. *Intraorbital Wooden And Bamboo Foreign Bodies: Ct. Neuroradiology.* 1997;39:213-5 Pubmed.
- [8] Wilson W, Dreisbach J, Lattin D, Stears J. *Magnetic Resonance Imaging Of Nonmetallic Orbital Foreign Bodies. Am J Ophthalmol.* 1988;105:612-7pubmed
- [9] Yamashita T, Mikami T, Baba T, Minamida Y, Sugino T, Koyanagi I, Et Al. *Transorbital Intracranial Penetrating Injury From Impaling On An Earpick. J Neuroophthalmol.* 2007;27:48-9 Pubmed